TMDL IMPLEMENTATION PLAN FOR RICHLAND CREEK

Introduction

Richland Creek is in the Oconee River Basin. Two stream segments are listed on the §303(d) list for the State of Georgia for not meeting the water quality standard for fecal coliform to support its designated use of fishing. It is one of four stream segments being addressed within Greene County simultaneously. The U.S. Environmental Protection Agency developed a total maximum daily load estimate (TMDL) for the creek, based on a prediction of a 30-day geometric mean of 702 cfu/100ml and suggested a reduction of 85% in runoff loading and 50% reduction in groundwater/interflow. Sources modeled for reduction in the TMDL were Urban, Forest, and Agriculture.

The stream is the recipient of discharge from the Greensboro North Wastewater Treatment Plant (WTP). A tributary of Richland Creek is Town Creek, which drains part of Greensboro and is the receiving stream for the Greensboro South Wastewater Treatment Plants (WTP). It joins Richland just north of I-20. Town Creek itself is listed on the 303(d) list as partially supporting its designated use of Fishing. (This Town Creek should not be confused with the Town Creek that is the next drainage north, is on the 303(d) list for fecal coliform, and is being addressed in another TMDL implementation plan.)

The lower portion of Richland Creek (from I-20 to Lake Oconee) is also listed for dissolved oxygen violations. This criterion is not addressed in this implementation plan. Although the TMDL prepared by USEPA assumed that the fecal concentration from this plant to be 200 cfu/100ml at all times, the plant is known that the plant from time to time has had failures that introduce fecal coliform to Richland Creek at higher concentrations. The WTP is under a consent order to attain compliance with fecal coliform limits by November, 2002.

The purpose of this implementation plan is to identify and eliminate sources of fecal coliform in the drainage basin in order to meet the fecal coliform water quality standard.

Overview

The drainage basin of Richland Creek lies wholly within the boundaries of Greene County and covers approximately 73,000 acres.

Land use in the basin was determined in the TMDL to be 1.4% urban pervious, 51% forest, 14% agricultural, and 33% “total impervious”. The City of Greensboro is wholly within the basin and, along with a few outlying subdivisions, comprises the residential, commercial, and industrial land uses that make up the “urban” and “impervious” classifications. The remainder of the area is mostly covered with forest and pasture. There are no known concentrated animal feeding operations in the drainage.

Greensboro is generally served by public sewerage, but not all areas within the city are connected. The remainder of the area is served by individual septic tanks.

Possible sources of fecal coliform in the basin include malfunctioning septic tanks; illicit direct discharge of residential or commercial wastewater into tributary streams; animal waste (livestock, pets, and wildlife); and storm water runoff.

Pinpointing individual sources typically requires extensive analysis and monitoring of the stream and its tributaries during both wet and dry weather conditions.

Current Activities

The Greene County Health Department has been aggressively reducing fecal coliform discharges for approximately eighteen months. Failed and absent septic systems are being addressed through education and, in extreme cases, legal action. The long-standing practice in the county of discharging septic tank pumping trucks ("honey wagons") into the headwaters of streams has been eliminated.

The NRCS is administering a $450,000 grant under §319 of the Clean Water Act designed to reduce agricultural pollution of Richland and Beaverdam creeks. The program has been signing up partners for cost-shared BMP implementation since October, 2000, and participation has been good. No actual BMP's have been installed yet. Other agriculture-related projects are active in the area, including the EQUIP program, implementation of nutrient management plans, and other activities of the NRCS and extension service.

The Greene County and Greensboro land development regulations provide for the minimum 25-foot buffer on streams, but otherwise contain no storm water quality requirements.

Future Activities

Watershed Team Formation

A Greene County Watersheds Task Force will be formed to work on fecal coliform reduction in this basin as well as others in the county. Currently, the task force consists of representatives from the City of Greensboro WTP facility and the city manager's office; Greene County Board of Commissioners and Department of Public Works; Natural Resources Conservation Service; Cooperative Extension Service; Greene County Board of Health (Health Department); and the environmental codes enforcement officer.

In addition to the working task force, a stakeholders' group will be formed of persons with an interest in the watershed. One meeting has been held with stakeholders, which was attended by approximately 20 people. The Upper Oconee Watershed Network, Georgia Legal Watch/Community Watershed Project, several farmers, and interested members of the community attended and expressed interest in continuing to participate. Additional groups and individuals will be contacted and invited to participate in the overall county effort and the Richland Creek effort specifically. This group will identify areas of concern, offer input to and feedback on plans, participate in outreach and education, and recruit support from the community.

Public Education

The task force and stakeholders' group will identify or develop materials to use in a public education campaign to inform citizens of the need to reduce sources of waste that might produce fecal coliform and minimize the exposure of storm water to these sources. The campaign will begin immediately and will inform the public of steps they can take to reduce possible sources. The task force will also decide where, when, and how to disseminate this information.

Compiling Additional Information

Among the first steps in implementing this plan will be to compile additional data. Information needed will include, but not be limited to: Accurate delineation of the drainage[1] collection of existing stream sample data; survey of agricultural practices in the basin; collection of data from the health department on the condition of septic systems in the drainage; collection of data on known sites of failure and problem areas in the sewerage system.

Monitoring

All existing data on fecal coliform concentrations in Richland Creek will be compiled. Additional monitoring may be needed. The task force, with help from the stakeholders' group, will determine the specifics for baseline monitoring (such as selecting the locations, frequency, and conditions of monitoring), seek funding from local, state, and federal sources, and conduct the baseline monitoring as needed (provided that funding can be secured). Sampling costs, if carried out by county staff and tested in-house, are estimated to be approximately $100 per sample. It is not certain that the testing facilities The purpose of the monitoring will be to identify the sources of fecal coliform in the basin in order to target them for abatement. The task force will consider setting up the BASINS/NPSF water quality model, with the assistance of the Northeast Georgia Regional Development Center, to incorporate and better analyze the monitoring data.

The Georgia EPD is scheduled to conduct monitoring of the Oconee Basin in 2004 in support of its 5-year River Basin Management Plan cycle. In addition, the task force may participate in additional monitoring in 2004 - 2005 to determine the effectiveness of implementation plan activities.

Source Identification

After analyzing the monitoring data, the task force will seek to identify and rank potential sources of fecal coliform. It is anticipated that the stakeholders' group will be valuable in this

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[1]The upper parts of the drainage are well defined by the USGS HUC 12 database supplied by EPD. However, the lower termination of the segment is "Lake Oconee." Richland Creek merges imperceptibly with a narrow arm of Lake Oconee. The lower boundary is important because it must be determined whether subdivisions adjacent to that arm are to be included or not. Many subdivisions adjacent to Lake Oconee are known to have very high rates of septic tank failure.

step. Possible human activity-related sources in the drainage include illegal wastewater discharges (known to occur), septic tank failures (known to occur), accidental discharges or overflows from the WTP operated by Greensboro (known to occur), sewer line breaks or overflows, poorly sited and managed commercial solid waste receptacles, runoff from a large animal holding site (sale barn without storm water BMP's), miscellaneous urban surface runoff, and agricultural activities in and near streams.

Pollution Reduction Strategies

Failing or absent on-site septic tank systems will be addressed through the local health department and Board of Health, which are responsible for regulating septic systems. The number of septic tanks in the basin is unknown, as is their rate of failure. If failing septic tank systems are found, prompt action will be taken to eliminate them. Public education will play a major role in finding and fixing substandard waste water systems. The task force will evaluate the need for and feasibility of adopting a septic tank inspection ordinance. A major obstacle in mitigating these sources will be the limited financial capacity of the property owners. Several sources of funding to assist them will be pursued, including but not limited to private foundations, CDBG funds, §319 grants, and state assistance programs.

Agriculture in the basin will be evaluated with the help of the NRCS, County Extension Office, and the Soil and Water Conservation District. Once sources are identified, task force members will work through specific property owners to implement fecal coliform-reducing best management practices (BMP's).

Public education and outreach will be an important part of the strategy. Informing residents and businesses about the fecal coliform violation is a necessary step to recruiting their support and changing individual behaviors. Outreach will include information about on-site septic systems, agricultural BMP', disposal of pet waste, and other non-point source pollution prevention. Strategies could include a web page, mass mailings, attendance at civic clubs and homeowners' association meetings, stream walk\s, and stream clean-ups. Agricultural education is far ahead of education of the urban and suburban populations, and will be continued through the Soil and Water District, NRCS, and Extension Service.

Phase I Implementation

Funding options will be explored by the task force. The Clean Water Act §319 funds, state revolving loan fund, Georgia Environmental Facilities (GEFA) grants and loans, Community Development Block Grants, and local funds are sources to explore. There are several private foundations in the county, and they may be approached for funding of selected projects. Human resources are available through the Greensboro public works department, county offices, and farmers' groups and will be explored.

Once funding is established, the task force members will pursue measures to reduce the contributions of the sources identified.

Monitoring Progress

After implementation of the strategies has continued for a reasonable length of time, monitoring will be repeated to determine the extent of improvement. The purpose will be to have Richland Creek removed from the §303(d) list for fecal coliform if monitoring shows compliance with the standard.

Subsequent Phases

If the second round of monitoring shows that the stream remains in violation of the fecal coliform standard, then the previous steps will be repeated until acceptable water quality is attained.

Reporting

The task force will write an annual report on progress on the TMDL implementation plan and will prepare a final report showing that water quality compliance has been achieved.

Ongoing Maintenance, Monitoring, and Follow-up

The task force will develop a strategy for maintaining the water quality standard in the future. It will also devise a method of monitoring to assure that standards are indeed maintained.

This plan may be modified according to experience and circumstances.

STATE OF GEORGIA
TMDL IMPLEMENTATION PLAN FOR: Richland Creek (Fecal coliform) RIVER BASIN: Oconee
(STREAM) (PARAMETER) PLAN DATE: 03/26/01

Prepared by: Joseph Tichy Northeast Georgia Regional Development Center Address:305 Research Drive City:Athens State: Georgia Zip: 30605 e-mail: jtichy@negrdc.org Date Submitted to EPD: _____	Or Prepared By: _____ Address: _____ City:_____State: _____ Zip: _____ e-mail: _____ Date Submitted to EPD: _____

General Information		Significant Stakeholders					
Obtain this information from the TMDL document or other information. When completed, this document will be a self-contained report independent of the TMDL document.		Identify local governments, agricultural organizations or significant land holders, commercial forestry organizations, businesses and industries, and local organizations including environmental groups with a major interest in this water body.					
TMDL ID (to be entered by EPD)	OCO0000011	Name/Organization	Greene County Board of Commissioners				
Water body name	Richland Creek	Address	113 North Main Street, Suite 306				
HUC basin name	Upper Oconee	City	Greensboro	State	GA	Zip	30642
HUC numbers	030701011101 030701011104	Phone	706-453-7716			e-mail	
Primary county	Greene	Name/Organization	Greene County Board of Health				
Secondary county	N/A	Address					
Primary RDC	Northeast Georgia	City		State		Zip	
Secondary RDC	N/A	Phone	706-453-7561			e-mail	regulatormr@yahoo.com
Water body location		Name/Organization	Georgia Legal Watch/Community Watershed Project				
		Address	264 North Jackson Street				
Miles or area impacted	25 mi.	City	Athens	State	GA	Zip	30601
Parameter addressed in plan	Fecal coliform	Phone	706-546-9008			e-mail	glw@georgialegalwatch.org
Water use classification	Fishing	Name/Organization	Upper Oconee Watershed Network				
Degree of impairment	Partially supporting use ☐	Address	P.O. Box 531				
	Not supporting use X	City	Athens	State	GA	Zip	30603
Date TMDL approved by EPA		Phone				e-mail	upperoconee@yahoo.com
Impairment due to	Point sources ☐	Name/Organization	Natural Resource Conservation Service				
	Nonpoint sources X	Address	1600 Main St.				

	Both X	City	Greensboro	State	GA	Zip	30642
Point source-Form A; Nonpoint source-Form B; Both-Form A+B+C		Phone	706-453-7021			e-mail	

If more, add to comments on last page.

FORM B

SUMMARY OF ALLOCATION MODEL RESULTS FROM TMDL DOCUMENT (existing load, target TMDL, and needed reduction)

EXISTING LOAD	TARGET TMDL	NEEDED REDUCTION
702 cfu/100ml	**150 cfu/100ml**	**552 cfu/100ml (85%)**

I. IDENTIFY **NONPOINT SOURCE** CATEGORIES AND SUBCATEGORIES OR INDIVIDUAL SOURCES WHICH MUST BE CONTROLLED TO IMPLEMENT LOAD ALLOCATIONS:

List major nonpoint sources contributing to impairment including those identified in TMDL document.

SOURCE	DESCRIPTION OF CONTRIBUTION TO IMPAIRMENT	RECOMMENDED LOAD REDUCTION (FROM TMDL)
Urban Pervious	Pet and wildlife waste from runoff; dumpsters; miscellaneous urban.	50%
Total Impervious	As above; failed or poorly designed septic systems.	85%
Forest Pervious	Wildlife waste runoff, hunting and off-roading camps	50%
Agriculture Pervious	Livestock waste in runoff and in stream	85%

II. DESCRIBE ANY REGULATORY OR VOLUNTARY ACTIONS INCLUDING MANAGEMENT MEASURES OR OTHER CONTROLS BY GOVERNMENTS OR INDIVIDUALS THAT SPECIFICALLY APPLY TO THE POLLUTANT AND THE WATERBODY FOR WHICH THE TMDL WAS WRITTEN, THAT WILL BE ACCOMPLISHED THROUGH RELIABLE AND EFFECTIVE DELIVERY MECHANISMS, AND THAT WILL HELP ACHIEVE THE LOAD ALLOCATIONS IN THE TMDL:

See the attachment for more instructions.

Existing or required regulatory actions

RESPONSIBLE GOVERNMENT, ORGANIZATION OR ENTITY	NAME OF REGULATION/ORDINANCE	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Greene County Health Dept.	Septic Tank Permitting; regulates septic tank pumping	Requires permitting of septic tanks, soil testing, installation code. Prevents dumping septic pump-out in streams.	Unknown	Ongoing

Greene County & Greensboro Planning Depts.	Land Development Ordinances	No requirements for storm water detention	Unknown	Ongoing
EPD	NPDES Permitting and regulation	Regulates Greensboro WTP	Unknown	Ongoing

Existing voluntary actions

RESPONSIBLE ORGANIZATION OR ENTITY	NAME OF ACTION	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Community Watershed Project	Education & Research	Brochures, stream walks, Annual "River Rendezvous"; press articles; not yet active in Greene County	Ongoing	Ongoing
Agricultural practitioners	Cattle & chicken BMP's	Stream fencing, nutrient management, heavy use area improvements, etc.	Ongoing	Not known for this basin
NRCS	Section 319 grant	Promoting BMP's mentioned above; cost sharing program for volunteere farms	10/2000	About ½ of contracts allocated, still implementing
NRCS, Extension Serv, S&WCD	Multiple programs	Promoting programs on nutrient management, herd management, etc.	Ongoing	Ongoing

Additional recommended regulatory or other measures which should be implemented to reduce the loads of the TMDL parameter

ENTITY/ORGANIZATION RESPONSIBLE	NAME OF PROPOSED REGULATION/ORDINANCE/ OTHER	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Greene County, City of Greensboro, County Health Department	Monitoring	Monitoring regime TBA to identify specific sources	08/01	Under discussion
Greene County, City of Greensboro	Storm Water Ordinance	Incorporate water quality into design and operation of storm water facilities; incorporate storm water quality control into development ordinances	2003	Under Discussion
Greene County, City of Greensboro, Health Dept.	Septic Tank Inspection ordinance	Provision to require septic tank inspection either at regular intervals or on sale of property.	2002	To be considered by TF
City of Greensboro, Health Dept., other TF members	Illicit connections	Identify any illicit connections of fecal sources to drainage system	2002 +	Under consideration

Agricultural practitioners/NRCS/Soil & Water Conservation	Installation and use of BMP's	Encourage use of agricultural BMP's on case by case basis. BMP's include fencing, watering alternatives, heavy use area improvements, nutrient management, etc.	2001 +	Ongoing
City of Greensboro	Leak detection & repair program	Systematic inspection of sewer lines on a regular basis to detect leaks and effect repairs	2001 & ongoing	To be considered by TF

III. SCHEDULE FOR IMPLEMENTING MANAGEMENT MEASURES OR OTHER CONTROL ACTIONS:

These must be implemented as expeditiously as practicable within five years of when the implementation plan is accepted by EPA.

IMPLEMENTATION ACTION	**YEAR 1**	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**
Form stakeholders group	**X**				
Organize implementation work with stakeholders and local officials to identify remedial measures and potential funding sources	**X**	**X**			
Identify sources of TMDL parameter	**X**	**X**			
Develop management programs to control runoff including identification and implementation of BMPs (Phase I): Agriculture		**X**	**X**	**X**	**X**
Forestry					
Urban		**X**	**X**	**X**	**X**
Mining					
Organize and implement education and outreach programs	**X**	**X**	**X**	**X**	**X**
Detect and eliminate illicit discharges		**X**	**X**	**X**	
Evaluate additional management controls needed		**X**	**X**		
Monitor and evaluate results				**X**	**X**
Reassess TMDL allocations					**X**
Provide periodic status reports on implementation of remedial activities and review/modify implementation plan		**X**	**X**	**X**	**X**
If needed, begin process for Phase II (next 5 years) and subsequent phases					**X**

IV. PROJECTED ATTAINMENT DATE AND BASIS FOR THAT PROJECTION:

The projected attainment date is 10 years from acceptance of the implementation plan by EPA.

V. MEASURABLE MILESTONES:

- Number of management controls and activities already implemented ____7_____

- Number of management controls and activities proposed in five-year work program ____6_____

- Number of management controls and activities actually implemented in five-year work period _____(to be completed after 5 years)

- Stream sampled to identify areas of concern See monitoring plan to be developed

- Other _____ _____

- Other _____ _____

VI. MONITORING PLAN:

The monitoring plan will be determined in first phase of implementation.

Describe previous or current sampling activities or other surveys to detect sources or to measure effectiveness of management measures or other controls.

ORGANIZATION	TIME FRAME	PARAMETERS	PURPOSE	STATUS
USGS	Jan - Dec, 1999	BOD, pH, NH3, NO2 + NO3, P, C, FC	General water quality monitoring	Completed
USGS	Jan, 1996	IONS, pH, T, DO, Turb, FC, Alk, NO2 & NO3, NH3, P, C	General water quality monitoring	Completed

Describe any planned or proposed sampling activities or other surveys. (Scheduled EPD sampling can be found in the Basin Planning document.)

ORGANIZATION	TIME FRAME	PARAMETERS	PURPOSE	STATUS
EPD	2004		River basin planning	Planned
Greene County, City of Greensboro, County Health (Task Force)	2001 – 2005	FC	Support for TMDL implementation	TBD pending ability to secure funding from local, state, federal sources

VII. CRITERIA TO DETERMINE WHETHER SUBSTANTIAL PROGRESS IS BEING MADE:

- % concentration or load change (monitoring program)

- Categorical change in classification of the stream (delisting the stream is the goal)

- Regulatory controls or activities installed (ordinances, laws)

- Best management practices installed (agricultural, forestry, urban)

COMMENTS

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